

Claims 1, 2 and 4-15 are pending in this application. Claims 1 and 11 are independent. Claims 1 and 11 have been amended to include the feature that the compound having a functional group is contained in the resin composition at a content ranging from 5% to 50% by weight. Support for the "5%" feature may be found in the specification at least at page 10, line 3. Claim 12 has been amended to improve its grammatical form. It is submitted that no new matter has been added by these amendments.

Claims 1, 2, 4 and 8-15 were rejected under 35 U.S.C. § 102(e) as allegedly anticipated by Ohkuma, et al. (U.S. Patent No. 5,478,606). Claims 5-7 were rejected under 35 U.S.C. § 103(a) as allegedly obvious over Ohkuma, et al. in view of Field, et al. (U.S. Patent No. 3,852,222). Applicants respectfully disagree with these rejections as applied to the present claims.

Before addressing the merits of the rejections, Applicants believe it will be helpful to review some advantages and features of the present invention. The portions of an ink jet head that are in contact with the ink, particularly the flow path and the liquid chamber, are subject to certain problems. For example, their dimensions may change due to swelling, thereby deteriorating the printing quality, or a part of the flow path wall may peel off due to stress caused by swelling. In the present invention, the fluorocarbon moiety-containing compound having

a functional group reactive to an epoxy resin is bonded to the epoxy resin component. This reduces water absorption by a material which becomes a constituent member, such as a flow path wall, and solves the above-described problems caused by swelling.

The Examiner states that Ohkuma, et al. discloses a compound in which fluorocarbon is added to an epoxy resin. Applicants submit, however, that the fluorocarbon cited by the Examiner is copper triflate which is added as a catalyst (Table 2), or a cationic photopolymerization initiator (Tables 1 and 2). Applicants further submit that the copper triflate and the cationic photopolymerization initiator are not fluorocarbons having a functional group reactive to the epoxy resin as defined in the present invention.

Furthermore, the cationic polymerization initiator in Table 1 of Ohkuma, et al. is present at 1 part, i.e., 0.9 weight percent. The cationic photopolymerization initiator and the copper triflate in Table 2 are each present at 0.5 part, i.e., 0.47 weight percent, respectively, or a total of 0.94 weight percent. These amounts are far from the range of 5 to 50 weight percent as claimed in Claims 1 and 11 of the present invention.

Referring to Example 3 and Comparative Example 2 of the present specification, a "fluorocarbon-containing compound" as recited by the claims is present in Example 2 but no "fluorocarbon-containing compound" is present in

Comparative Example 2, and copper triflate is present in both. Accordingly, Applicants believe that Comparative Example 2 corresponds to Ohkuma, et al. The results (see pages 21-22 of the specification) show that even if copper triflate is present, if the required "fluorocarbon-containing compound" is not present, the advantages according to the present invention cannot be obtained.


Field, et al. is cited for disclosing aromatic and alkyl diols that contain hydroxyl functional groups as compounds useful for polymerization reactions. The object of Field, et al. is to obtain high water repellency. Applicants submit, however, that in an ink jet head, if the portion that is in contact with ink, such as a flow path wall, has high water repellency, the portion is likely to hold bubbles. This causes an adverse effect on ink discharge. The present invention defines the amount of fluorocarbon-moiety compound having a functional group reactive to an epoxy resin such that water absorption of the constituent material (such as a flow path wall) is reduced without exhibiting high water repellency. In particular, when the compound is present at the claimed range, water absorption can be reduced without making water repellency high. Field, et al. neither discloses nor suggests the claimed range of the present invention. Thus, it does not remedy the deficiencies of Ohkuma, et al.

For the foregoing reasons, Applicants submit that the present invention is patentably defined by independent Claims 1 and 11. The dependent claims are also submitted to be patentable because they set forth additional aspects of the present invention and are dependent from the independent claims. Separate and individual consideration of each dependent claim is respectfully requested.

Applicants respectfully request that the Section 102 and 103 rejections be withdrawn. Applicants submit that this application is in condition for allowance and a Notice of Allowance is respectfully requested.

Applicants' undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should be directed to our new address given below.

Respectfully submitted,



Attorney for Applicants
Registration No. 30,928

FITZPATRICK, CELLA, HARPER & SCINTO
30 Rockefeller Plaza
New York, New York 10112-3801
Facsimile: (212) 218-2200

F502\W167216\JKD\wpj